

Claims

- [c1] 1. A method for routing communication lines between blocks of an application specific integrated circuit (ASIC), comprising:
 - determining route paths between blocks of the ASIC;
 - scanning the route paths for transmission line replacement candidates;
 - and
 - for each transmission line replacement candidate, automatically selecting a buffered wire or a transmission line to implement the route path.
- [c2] The method of claim 1, wherein determining route paths further comprises:
 - obtaining multiple route paths using wires with and without buffers.
- [c3] The method of claim 1, wherein a transmission line replacement candidate is selected from the group consisting of a route path the passes over a block of the ASIC and a route path that does not require a buffer.
- [c4] The method of claim 1, wherein automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
 - providing a look-up table containing process specific parameters of the transmission line.
- [c5] The method of claim 4, wherein automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
 - determining a length of the route path for the buffered wire;
 - determining a length of the route path for the transmission line, and
 - obtaining, based on the process specific parameters of the transmission

ine contained in the look-up table, a value for the transmission line; comparing the value for the transmission line to a corresponding value for the buffered wire; and automatically selecting the buffered wire or the transmission line based on the comparison.

- [c6] The method of claim 5, wherein the value is signal delay per unit length.
- [c7] The method of claim 1, wherein the transmission line comprises a coplanar waveguide transmission line.
- [c8] 8. A program product stored on a recordable medium for routing communication lines between blocks of an application specific integrated circuit (ASIC) which, when executed, comprises:
 - program code for determining route paths between blocks of the ASIC;
 - program code for scanning the route paths for transmission line replacement candidates; and
 - program code for automatically selecting a buffered wire or a transmission line to implement the route path, for each transmission line replacement candidate.
- [c9] The program product of claim 8, wherein the program code for determining route paths further comprises:
 - program code for obtaining multiple route paths using wires with and without buffers.
- [c10] The program product of claim 8, wherein a transmission line replacement candidate is selected from the group consisting of a route path the

passes over a block of the ASIC and a route path that does not require a buffer.

- [c11] The program product of claim 8, wherein the program code for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
 - program code for accessing a look-up table containing process specific parameters of the transmission line.
- [c12] The program product of claim 11, wherein the program code for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
 - program code for determining a length of the route path for the buffered wire;
 - program code for determining a length of the route path for the transmission line, and obtaining, based on the process specific parameters of the transmission line contained in the look-up table, a value for the transmission line;
 - program code for comparing the value for the transmission line to a corresponding value for the buffered wire; and
 - program code for automatically selecting the buffered wire or the transmission line based on the comparison.
- [c13] The program product of claim 12, wherein the value is signal delay per unit length.
- [c14] 14. A design tool for routing communication lines between blocks of an application specific integrated circuit (ASIC), comprising:

a system for determining route paths between blocks of the ASIC;
a system for scanning the route paths for transmission line replacement candidates; and
a system for automatically selecting a buffered wire or a transmission line to implement the route path, for each transmission line replacement candidate.

- [c15] The design tool of claim 14, wherein the system for determining route paths further comprises:
a system for obtaining multiple route paths using wires with and without buffers.
- [c16] The design tool of claim 14, wherein a transmission line replacement candidate is selected from the group consisting of a route path that passes over a block of the ASIC and a route path that does not require a buffer.
- [c17] The design tool of claim 14, wherein the system for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
a look-up table containing process specific parameters of the transmission line.
- [c18] The design tool of claim 17, wherein the system for automatically selecting a buffered wire or a transmission line to implement the route path further comprises:
a system for determining a length of the route path for the buffered wire;
a system for determining a length of the route path for the transmission

line, and obtaining, based on the process specific parameters of the transmission line contained in the look-up table, a value for the transmission line;

a system for comparing the value for the transmission line to a corresponding value for the buffered wire; and

a system for automatically selecting the buffered wire or the transmission line based on the comparison.

[c19] The design tool of claim 18, wherein the value is signal delay per unit length.

[c20] The design tool of claim 14, wherein the transmission line comprises a coplanar waveguide transmission line